DAQ browser: FACILITY STATUS HISTORY (FSH)

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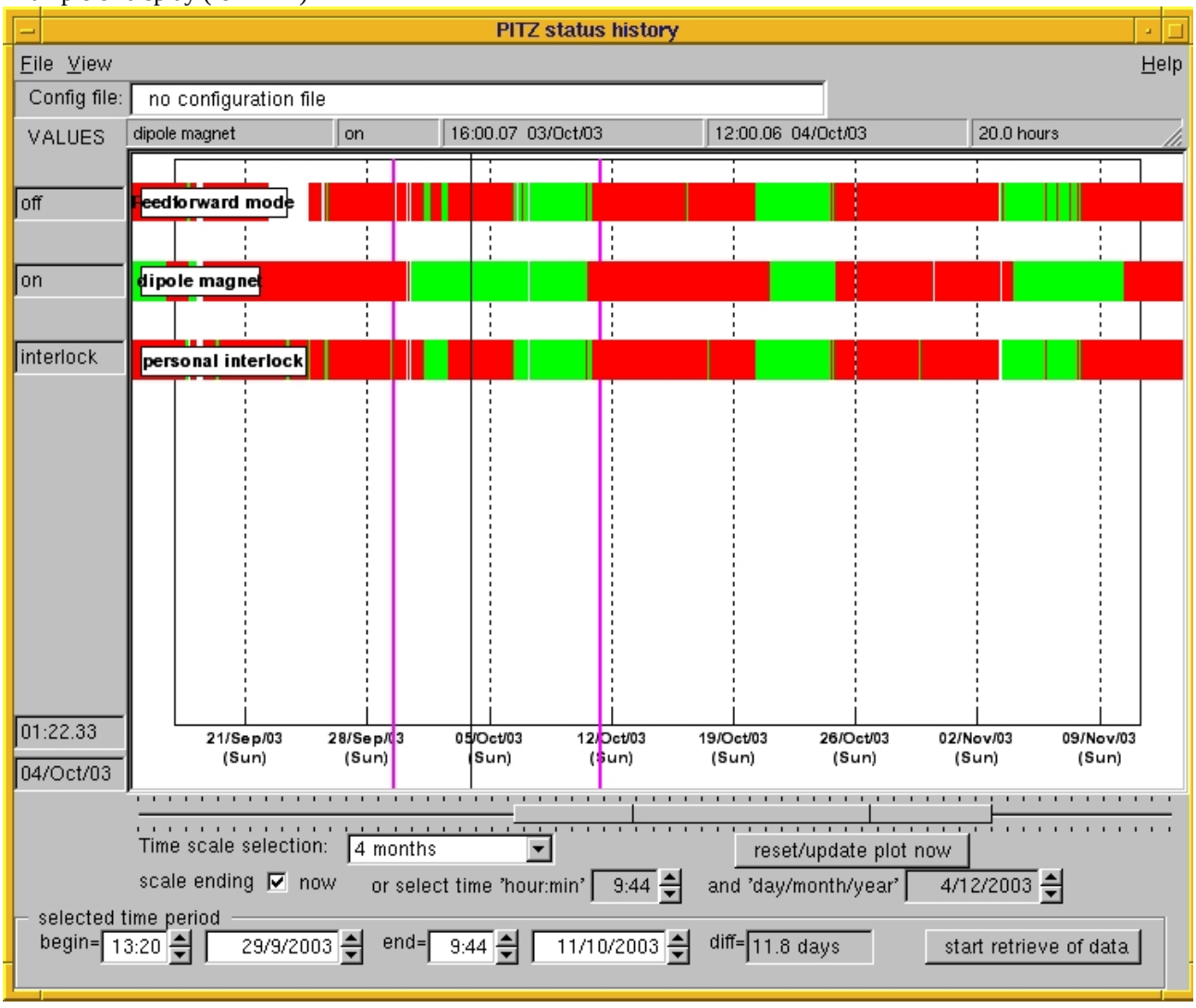
Example of display (for PITZ)



Goal of the program

This program aims to visualize a history of the status of the accelerator as recorded by the status servers. With this program, the user selects a time period for retrieving data from DAQ.

Version of the program

Source files in CVS
Last release: version 1.02 from 4th Dec. 2003 (13 classes, 3907 lines, 110 kB of code, about half of it in THistWin.cpp)
Updated on 10th Dec. 2003
Works with ROOT 3.05/07 or later version.

Getting started

PITZ (DESY-ZEUTHEN): in a Solaris workstation (ex. 'corvus') by typing:

```
start_fsh
```

this will execute the script:

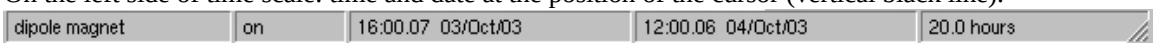
```
#!/bin/zsh

cd /net/corvus/doocs/daq/fsh

export ROOTSYS="/cern/root/v3.05.05"
export LD_LIBRARY_PATH="/net/corvus/doocs/daq/fsh:/cern/root/v3.05.05/lib:/net/corvus/doocs/sola

/net/corvus/doocs/daq/fsh/PlotFSH
```

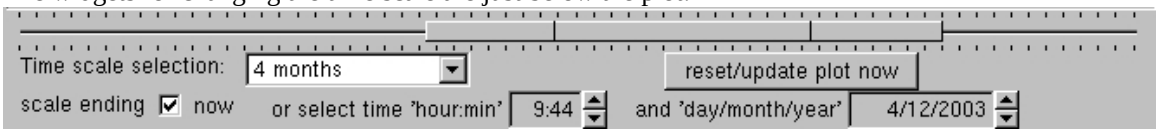
Values displayed:

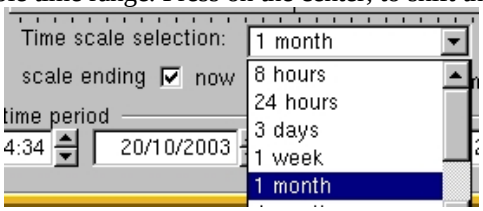
- On the left side of the plot: values of the status at the position of the cursor (vertical black line).
- On the left side of time scale: time and date at the position of the cursor (vertical black line).
- 

On the top of the plot: name, value, begin, end and duration of the status under the cursor.

Changing the horizontal (time) scale

The widgets for changing the time scale are just below the plot:



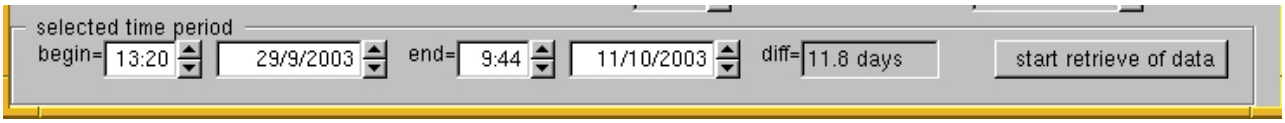
- To zoom in the time scale, position the cursor **inside** the plot, press the right mouse key, drag over and release the key. If the cursor is outside left (or right) of the plot at the moment of the key release, the scale will expand to the minimum (or maximum) range value. To zoom out the scale, click the button 'reset/update plot now'.
- A 'double slider': to select the time range of the visible plot. Press on the left/right side of the slider and drag to change the visible time range. Press on the center, to shift the scale.
- A 'combo box': 

to select the 'full range' of the plot. The options are '8 hours', '1 day', '3 days', '1 week', '1 month', '4 months', etc.
- A 'chech button' with label 'now': to select the end of the time scale. If the button is 'checked', then the end of the time scale is the current time (now). If the button is NOT 'checked', then the end of the time scale is given by the time and data on the right side of the button.
- Two entries: time and date of the end of the scale. if the button 'now' is checked, then current time and date are shown and can not be changed. To change then, click on the button 'now'. Then, the entries become white and can be changed by typing a new value or
using up/down arrow keys. To validate the change, press enter or press the button 'reset/update plot now'.

Select a time range for retrieving DAQ data

To select a period of time with the cursor:

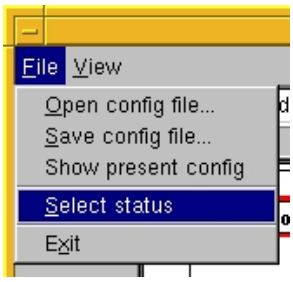
1. To mark the begining: Place the cursor inside the plot and push the key 'b' (on the keyboard). A violet vertical line shows up and the corresponding the time and date appear at the bottom of the window (in the box 'selected time period').
2. To mark the end: Place the cursor inside the plot (on the right side of the line 'beginning') and push the key 'e'. A violet vertical line shows up and the corresponding the time and date appear at the bottom of the window (Note: if the cursor is on the left side of the line 'beginning', the line 'beginning' moves to a place between the left side and the 'end' line.)



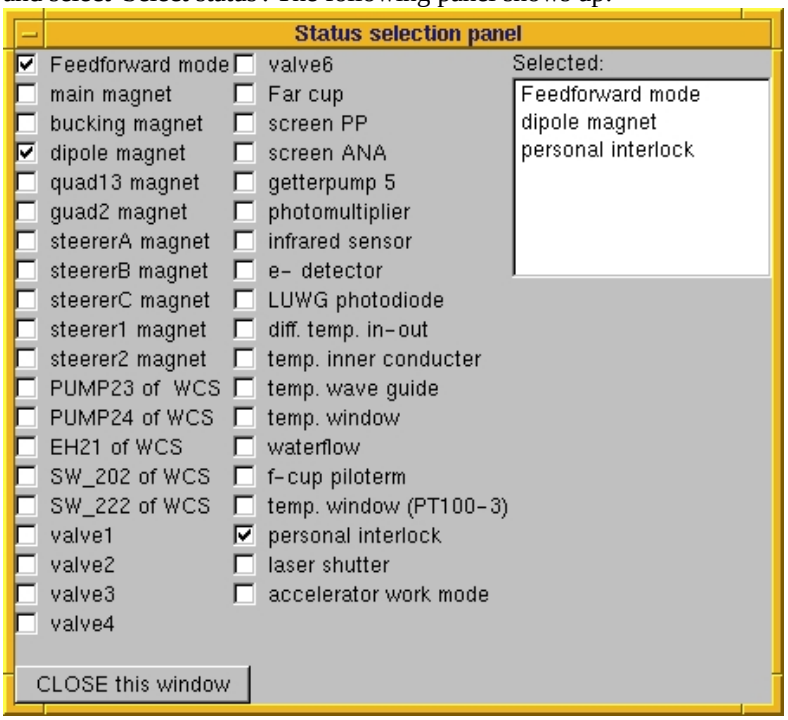
A period of time can be also selected by typing the times and dates at the entries inside the box 'selected time period' The values are actualized in the plot by pressing 'enter'. (See how to change time & date entries using up-/down-arrow keys.)

How to select the list of status

Click on 'File' menu (top right)



and select 'Select status'. The following panel shows up:



The status shown in the plot are marked with a 'check' sign. The list of selected status is shown in the box on the right side. Click on the status names to select or de-select status. A maximum of 11 status can be selected.

How to change the width of the plot

Click on 'View' menu (top right) and select to view '60%' or '100%'. (Note: resizing the main window does not change the size of the plot.)

How to save/recall the configuration of the plot

The current configuration of the plot can be shown by clicking on 'File' menu and selecting 'Show present config'. It can be saved onto a file, by clicking on 'File' menu and selecting 'Save config file...'. It is recommended to add the extension '.config' to the name of the file.
An example of a config file:

```
TimeScale=1 month
EndOfScale=now
TimeSelBegin=2003-11-08 10:38:00
TimeSelEnd=2003-11-20 14:47:00
StatusList=/net/corvus/doocs/server/fsh/prop_file_new
Selected:
Feedforward mode
dipole magnet
personal interlock
```

A saved configuration can be recalled by clicking on 'File' menu and selecting 'Open config file...'.
At the start, the program searches in the 'current directory' for a file with name 'FSH-standard.config'. If it does not exist, the program starts with a default (hard-coded) configuration.

How to exit the program

Click on 'File' menu and select 'Exit'.

Outlook: List of to-do's

- (Of course) Connect the button 'start retrieve of data' to the 'Archive filter' program (being developed).
- In the 'status menu': give the possibility to order the status selected.
- Add a plot to include scalars like 'beam energy', 'repetition frequency', 'RF pulse length', 'bunch charge', etc.
- Read status data from a history status server (to be written).

How to change time and date entries using up-/down-arrow keys

The time and date entries have two small buttons on the right to increase and decrease the numerical value in the field. The same effect have the up and down cursor keys. The step size is the minimum, i.e., for time is one minute and for date is one day. A larger step size can be selected pushing the keys 'shift' and 'control', see table below:

change in:	time	date
-	minute	day
pressing 'shift'	hour	month
pressing 'control'	10 hours	year

For any problems, comments, bug report, etc. please send me an e-mail